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ABSTRACT

This is a summary of the final report of a study (begun in 1979) of the National School Lunch, School Breakfast, and Special Milk Programs. The major objectives of the evaluation were to (1) identify existing information on the school nutrition programs; (2) identify determinants of participation in the programs and develop statistical models for forecasting participation rates; (3) determine the impact of the programs upon students and their families; and (4) determine whether existing benefit levels are appropriate for participants' needs. In this summary information is presented on the evaluation methods employed, general characteristics of the school nutrition programs, and socioeconomic characteristics of participants. Also detailed are findings regarding the programs' impact on family food expenditures, on the nutrient intake of participating students, and on students' growth and development. Finally, the effects upon program participation of eligibility criteria and price of meals provided are described. (GC)

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The National Evaluation of School Nutrition Programs

Final Report-Executive Summary

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THE NATIONAL EVALUATION OF SCHOOL NUTRITION PROGRAMS

FINAL REPORT - EXECUTIVE SUMMARY

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From the Final Report Volumes 1 and 2, April 1983
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In October 1979 the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture began an evaluation of the National School Lunch, School Breakfast and Special Milk Programs. The evaluation is formally called the National Evaluation of School Nutrition Programs. This is an executive summary of the final report from that study.

The major objectives of the evaluation were to: identify and synthesize existing research and evaluation data on the school nutrition programs, identify the determinants of participation in the school nutrition programs and develop statistical models for use in forecasting participation rates, determine the impact of the school nutrition programs upon students and their families, and determine whether existing benefit levels are appropriate for participants' needs. The study was initiated in response to Senate Resolution 90 (June 20, 1979, Report 98-208).

This report is the third major report emanating from the National Evaluation of School Nutrition Programs. The first report, U.S. Department of Agriculture's Response to Senate Resolution 90 (Radzikowski and Vogel, 1981) presented preliminary evaluation findings. The second report, The National Evaluation of School Nutrition Programs - Review of Research (Nelson et al., 1981) identified and synthesized the results from research studies completed between 1960 and 1980 that addressed the topics of school nutrition program operations and effectiveness.

In the subsequent parts of this summary, the goals of the school nutrition programs are identified and program operations are briefly described. Thereafter, highlights of the descriptive, impact and participation findings from the study are presented.

PROGRAM GOALS AND OPERATIONS

The National School Lunch Program was authorized in 1946 (P.L. 79-396) to safeguard the health and well being of the nation's children by providing them with nutritious foods and to support farm income by increasing the consumption of domestic agricultural products. In pursuit of similar goals, the Child

Nutrition Act of 1966 (P.L. 89-642) authorized the School Breakfast Program and the Special Milk Program. Through these programs, meals designed to meet specific nutritional requirements are offered at full price, reduced price or free to students in participating schools, according to uniform national eligibility criteria based on family income and size.

The Food and Nutrition Service of the U.S. Department of Agriculture is the principal administering agency for the National School Lunch, School Breakfast and Special Milk Programs. At the federal level, FNS is generally responsible for implementing program legislation; establishing regulations, policies and guidelines; monitoring program performance; and providing program and administrative funds to states. At the regional level there are seven FNS offices. The major functions of the FNS Regional Offices are to monitor and provide technical assistance to the state agencies. When state agencies cannot administer the programs in private schools because of state laws, FNS Regional Offices directly administer the programs in private schools. In turn, the state agency, usually the Department of Education, administers the programs within the states by providing technical assistance to local School Food Authorities (SFA's) at the school district level, by monitoring SFA performance, and by establishing fiscal record-keeping systems. At the local level, SFA's administer the programs in the schools they supervise, in accordance with all of the appropriate regulations such as those governing the income criteria for free and reduced price eligibility. Finally, individual schools are responsible for preparing nutritious meals and making them available to all children.

The school nutrition programs receive federal support primarily by a performance funding mechanism. The allocation of resources to the states by the federal government, and subsequently to the SFA's by the states, is based on a cash reimbursement for each meal or half pint of milk served. In addition to the cash reimbursement, schools receive an amount of commodities based on the number of lunches they serve plus as much of specified types of surplus commodities (e.g., cheese) as they can use without waste. At the time this study was conducted, during Fiscal Year 1981, states received approximately $2.4 billion in cash subsidies and $894 million in donated commodities for the

National School Lunch Program, $330 million in cash subsidies for the School Breakfast Program, and $102 million in cash subsidies for the Special Milk Program.

METHODOLOGY

The National Evaluation of School Nutrition Programs was the first study to examine the effects of the School Lunch, School Breakfast and Milk Programs on a nationally representative sample of public school students and their parents. In the Fall of 1980, data on public school students' program participation, dietary intake, growth and development and well being were taken through personal interview or direct measurement from approximately 6,500 students. During the same time period, data on family food expenditures, income and family composition were collected from the students' parents. Also, during this period, measures of program characteristics were collected from principals and food service managers in 1,100 public schools, through a mail survey. Statistical inferences and descriptive national estimates were made about school nutrition operations, participation patterns and impact, based on a wide range of program participants and nonparticipants in the sample.

DESCRIPTIVE FINDINGS

School Lunch - General Characteristics

The National School Lunch Program is available to almost all the public school students in the United States. During the time of the survey, 98 percent of these students had daily access to the Lunch Program.

About 25 million School Lunches, enough to feed 60 percent of those attending public schools were served every day. Students tended to be regular participants and eat the School Lunch every day or not at all. Two out of five School Lunches were served free of charge. Slightly more than half of all School Lunches were served to students paying full price. The average price of a full price School Lunch was 63 cents in the Fall of 1980 (81 cents in late 1981).

School Breakfast - General Characteristics

In contrast to the Lunch Program's pervasiveness in the United States, the newer School Breakfast Program is available to only 39 percent of public school students. The distribution of schools maintaining the Breakfast Program is by no means random--participating schools occur disproportionately in poor, southern and urban districts. Schools with the Breakfast Program also tend to have lower per pupil expenditures (i.e., local resources devoted to education tend to be less than in other schools).

At the time of the study, about four million School Breakfasts were served every day, enough to feed approximately 10 percent of the students attending public schools. Four out of five School Breakfasts were served free of charge. The average price of a full price School Breakfast was 28 cents in the Fall of 1980 (41 cents in late 1981). As in the Lunch Program, students tend to be regular participants and eat the School Breakfast every day or not at all.

School Lunch - Income and Family Composition of Participants

As a general rule, participation in the Lunch Program is highest for students from families in the lowest quartile of total income (below $12,250) and per capita income, and for students from large families (i.e., five or more members) and from single parent families. Large and single parent families are both known to be associated with lower socioeconomic status.

Black, Hispanic and other minority students also have higher participation rates than white students, who have the lowest rate. Although white students have the lowest rate of participation, they constitute the largest part of the school-age population and thus receive slightly more than two-thirds of the School Lunches.

School Breakfast - Income and Family Composition of Participants

The same participant characteristics of income and family composition described above for the Lunch Program also apply to the Breakfast Program; however, they are more pronounced for the Breakfast Program. That is, the Breakfast Program provides benefits to relatively higher percentages of low income and non-white

participants than is provided by the Lunch Program. Only 1.4 percent of those in the upper quartile of family income (above $30,000) participate in the Breakfast Program. Again, although white students have the lowest rate of participation, they consititute the largest part of the population and thus receive 40 percent of the School Breakfasts.

Schools That Do Not Have the Lunch or Breakfast Programs

There are about 1,700 public schools in districts where none of the schools have the School Lunch or Breakfast Program. They have an enrollment of about 1,000,000 students. The students in these schools are about 93 percent white, compared to a national average of about 75 percent white. These schools appear to serve students who are more affluent than those in schools that have the Lunch Program.

IMPACT FINDINGS

School Lunch - Impact on Family Food Expenditures

The monetary value of the federal reimbursement for School Lunches represents a subsidy to the families of participating students. An important issue is whether families use the subsidy to supplement or to substitute for their usual food expenditures.

Analyses from the study clearly show that the Lunch Program supplements family food expenditures. Contrary to some speculation, families in general do not reduce their food expenditures when their children receive subsidized meals at school. Thus the Lunch Program is attaining one of its legislated goals. It is promoting the consumption of agricultural products by increasing the amount or quality (i.e., value) of food obtained by participating families.

The School Lunch Program is an efficient way of increasing the value of food available to particpants' families since, in most cases, the value is increased by about the same amount as the federal subsidy. To judge the magnitude of the effect, one can compare it to the increased amount of food

expenditures resulting from an additional dollar of cash income. That comparison shows that an increase of between $9.00 and $10.00 of direct cash income would be needed to have the same effect on food expenditures as $1.00 of School Lunch subsidy.

The above findings hold for the general population of School Lunch participants. There are some differences in the effect of participation among different ethnic groups. There is a slight reduction in food expenditures for blacks and Hispanics. Most of the reduction is in expenditures for food away from home. No significant reduction is shown for food expenditures at home. Since the differences are slight and are for food away from home, it is possible that participants from these groups are diverting the money they would have spent on alternative lunches or snacks to other family expenditures.

School Breakfast - Impact on Family Food Expenditures

There is no reduction in family food expenditures for the general population of School Breakfast participants. The effect of Breakfast Program participation on the food expenditures of low income and ethnic groups is the same as that for the general population.

Because no substitution effect is found, the Breakfast Program, even more than the Lunch Program, can be considered primarily a food supplementation program and an efficient way of increasing the value of food available to participants' families.

School Lunch - Impact on the Nutrient Intake of Students

Impact on dietary intake gives an indication over the short term of the extent to which the school nutrition programs are attaining their goal of safeguarding the health of the nation's school-age children through the provision of nutritious foods.

Students who participate in School Lunch have higher intakes of energy and more nutrients than students who do not participate in any of the school

nutrition programs.[1] The Lunch Program is superior not only when participants' nutrient intake from the noon meal is compared to that of nonparticipants, but also when participants' 24-hour nutrient intake is compared to that of nonparticipants. The differences in nutrient intake are accounted for mainly by the higher nutritional value of School Lunches compared with the lunches eaten by nonparticipants.

It is worth noting that of the many nutrients for which Lunch Program participants show superior intakes, four (vitamins A and B6, calcium and magnesium) are ones that typically are deficient in the diet of the school-age population.

The superiority of the School Lunch is reflected in higher daily intake of nutrients for the general school-age population and for all the population subgroups that were examined. Elementary students, secondary students, and students from families with per capita income below the sample median (i.e., below $3,845) all benefit from participation in the Lunch Program. It was expected that an even greater nutritional impact would be found for low income students than for middle or high income students; however, the results for the low income students are quite similar to those for the general population of students.

School Breakfast - Impact on the Nutrient Intake of Students

The School Breakfast Program was originally established in part to combat the nutritional problems of poor children. Although all children in schools with this program are now eligible to participate regardless of their parents' income, historically there has been a conscious effort to target the Breakfast Program toward schools with high percentages of children from low income families.

[1] Nonparticipants, unless otherwise noted, are students in schools where the program in question is available but who choose not to participate. Comparisons are between students who eat the School Lunch and students who eat an alternative lunch. If students who skipped lunch were included in the nonparticipating group, differences between Lunch participants and nonparticipants would be even greater than the differences described here.

The findings from the study suggest that the principal nutritional benefit of the Breakfast Program is that it increases the likelihood that children will eat breakfast. This can be considered a nutritional benefit in that, on the average, chidren who eat a breakfast are substantially better nourished than those who skip breakfast. Based on projections made from this study's data, it is estimated that over 600,000 students who currently skip breakfast would eat it if the Breakfast Program were available in their schools.

Given that children do eat breakfast, the School Breakfast is not superior to the meal students obtain from non-USDA sources except for the milk-related nutrients. Moreover, the findings for the low income, elementary and secondary School Breakfast program participants are similar to those for the general population of Breakfast Program participants. Participants in these subgroups also have nutrient intakes that are inferior to those of nonparticipants. In fact, the School Breakfast provides less vitamin A and B6, and less iron than breakfasts eaten by nonparticipants.

Milk - Impacts on the Nutrient Intake of Students

When judging the dietary intake findings of the study, it is important to keep in mind the nutrient contribution of milk as part of the meal patterns. Milk is a major source of calcium, phosphorus and riboflavin. In almost all of the comparisons that demonstrate the relative efficacy of the school nutrition programs, singly or in combination with one another, the high intakes of some (i.e., calcium, phosphorus and riboflavin) but not all nutrients, are most likely due to milk consumption.

School Lunch - Impact on the Growth and Development of Students

Impact on growth and development (i.e., height and weight) provides indications of the long-term effects of program participation on children's health. However, such indices are much more likely to be affected by illness, genetic and environmental influences than by school meals.

Participation in the School Lunch Program shows no effects on students' height adjusted for age. However, intermediate and secondary school students who

have participated in the program an average of five days per week since entering school, weigh slightly more for their age and have slightly bigger triceps fatfolds than students who were less frequent participants. These effects of School Lunch participation do not vary with income status. The differences in weight and triceps fatfold thickness associated with participation among the older students are quite small compared with the effects of other factors such as the sex of the child, ethnic background and parents' height and weight. Consequently, the significance of these findings with respect to the goal of safeguarding the health of school-age children is difficult to evaluate.

School Breakfast - Impact on the Growth and Development of Students

School Breakfast participation is not related to students' height adjusted for age. Relationships with weight and triceps fatfold thickness are inconsistent and rather weak, although it appears that frequent Breakfast participants are somewhat less likely than nonparticipants to be under- or overweight, i.e., they are somewhat more likely to be in the normal range. These effects of School Breakfast Program participation do not vary with income status.

PARTICIPATION FINDINGS

School Lunch - Determinants of Participation

The biggest single determinant of School Lunch Program participation is meal price.[2] Holding other factors constant, students who pay higher prices participate less frequently. The responsiveness of participation frequency to the price paid for School Lunch depends very much on the price level. At a Lunch price of 40 cents for example, a 10 percent increase in price is associated with a 5 percent decrease in participation, while at a price of 60 cents, a 10 percent increase in price is associated with a 7.5 percent decrease in participation.

[2] Participation in this context is defined as the number of times within a given week a student eats the school meal.

Students whose parents report that the School Lunch is less expensive, more convenient and of higher nutritional value than lunch at home are more likely to participate. The strength of the effect of these factors suggests that parent attitudes as well as economic factors are important in predicting participation levels.

Other factors that account for a substantial amount of variation in School Lunch participation suggest that more frequent participants are students who are younger (under age 13), have parents who make the decision where to eat lunch, are male, have parents who are less educated, cannot eat lunch at home, live in rural areas and go to schools where the faculty and staff eat in the same dining areas as students.

School Breakfast - Determinants of Participation

Students who receive free Breakfasts or pay very low prices for Breakfast participate more frequently than those who pay higher prices. The responsiveness of participation frequency to the price paid for Breakfast depends on the price level of the meal but is generally quite high. At a Breakfast price of 20 cents for example, a 10 percent increase in price is associated with a 7 percent decrease in participation. The high responsiveness of participation to Breakfast price changes and the fact that only 27 percent of Breakfast participants pay anything for meals suggest that when students have to pay for the School Breakfast, the demand is quite low.

Other factors that account for a substantial amount of variation in School Breakfast participation suggest that more frequent School Breakfast participants are students who are younger, cannot eat breakfast at home, are black, are male, have parents who consider the School Breakfast a better nutritional value and more convenient than a home breakfast, make their own decision about where to eat breakfast and come from families that receive WIC benefits.

School Lunch - Targeting of Program Benefits

The targeting analyses developed a tool for examining the effects of current policy and changes to current policy on the distribution of program benefits.

For simulation purposes in the final report, the policy under scrutiny was the eligibility criteria for free and reduced price meals. The benefits of the School Lunch and Breakfast Programs were defined in terms of the number of meals that children received through the programs. The distribution of benefits was measured both by the participation rate of the total public school population and by the participation rates of various subgroups of public school students. Since the needs of various subgroups differ, the results of these analyses help in determining the extent to which the programs reach those groups with the greatest need.

The effects of different criteria were assessed by comparing participation rates under several different sets of eligibility criteria for free and reduced price meals. For example, the effects on various population subgroups of the eligibility criteria in use in Fall 1980 (i.e., a hardship deduction, 125 percent of poverty for free, 195 percent of poverty for reduced) were compared to the eligibility criteria in use after passage of the Omnibus Reconciliation Act of 1981 (i.e., no hardship deduction, 130 percent of poverty for free, 185 percent of poverty for reduced). This comparison showed that students from families in the second quartile of per capita income (i.e., $2,500 to $4,250) received a much greater reduction in School Lunch benefits than the general population. There were no important differences in effects for students of various ages or ethnicity, or for students from different regions of the country.

School Breakfast - Targeting of Program Benefits

The targeting analyses show the effects of changing eligibility criteria to be greater on School Breakfast participation than on School Lunch participation. Comparison of participation rates under the eligibility criteria in use in Fall 1980 to the rates under the eligibility criteria in use after passage of the Omnibus Reconciliation Act of 1981 shows the greatest reduction in Breakfast Program benefits for students who are in families with per capita income in the second quartile, live in the western or northeastern United States, are in grades 10 through 12 and are Hispanic.

CONCLUSIONS

- The School Lunch Program, while it delivers benefits to substantial numbers of poor students, serves all students.
- The School Breakfast Program, because it delivers mostly free meals and is found predominantly in schools located in low income areas, serves primarily the poor.
- Both the School Lunch and Breakfast Programs function more as food supplementation than as income supplementation programs. This is because, in general, the federal subsidy results in an increase in the value of food available to the family rather than an increase in discretionary income. Moreover, both programs are likely more efficient than the provision of additional cash income in accomplishing food supplementation goals.
- The School Lunch Program, as judged by the nutrient intake of students, clearly provides meals that are superior to the lunches received by nonparticipants. These differences are probably accounted for by the nutritional quality of foods prescribed in the national meal pattern.
- Compared to alternative breakfasts, the School Breakfast is superior only in the milk-related nutrients. Since the nutrients for which the School Breakfast suffers by comparison are low in the diets of a large percentage of school-age children, the School Breakfast meal pattern should be examined and improved. The major advantage of the School Breakfast Program is that fewer students skip breakfast in schools where the School Breakfast is available.
- Participation rates in both the School Lunch and Breakfast Programs are more sensitive to differences in the price of meals than any other factor affecting participation. School Breakfast participation rates would be especially depressed in the face of any substantial price hikes.
- Altering major policies (e.g., eligibility criteria) in the School Lunch and Breakfast Programs to control program costs, while often

having simple fiscal implications, can have different and not immediately obvious effects on the distribution of benefits to various subpopulations of participants. Such unanticipated effects of various policy options in many cases can now be estimated from the data collected in the National Evaluation of School Nutrition Programs.